APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/473,003	12/28/1999	MAQBOOLAHMED S. PATEL	15-IS-5283	9475

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JOHN F NETHERY
MCANDREWS HELD & MALLOY LTD
500 WEST MADISON STREET 34TH FLOOR
CHICAGO, IL 60661

EXAMINER
KIM, CHONG R

ART UNIT	PAPER NUMBER
2623	

DATE MAILED: 02/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

 A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
 THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-25_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-25_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _28 December 1999_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _2_ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Objections

1.   Claim 3 is objected to because of the following informalities: grammatical errors. The

phrase "the step of retrieving raw image data further comprises contrast preprocessed raw image

data" in lines 1-2 is grammatically incorrect. It appears that the applicant intended the phrase to

read "the step of retrieving raw image data further comprises retrieving contrast preprocessed

raw image data". Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2.   Claims 1, 8-9, 11, 12, 19-21 are rejected under 35 U.S.C. 102(b) as being anticipated by

the textbook entitled "PACS Basic Principles and Applications" by Huang ("Huang").

Referring to claim 1, Huang discloses a method of processing raw image data at a PACS

display workstation, the method comprising:

a.   retrieving from a PACS database, using a PACS workstation, raw image data

delivered from an imaging modality [pages 177-179 and figure 8.14 on page 225. Note that the

images from the imaging modality are sent to the PACS acquisition gateway for partial

preprocessing (converting the data format to the PACS standard format), see section 7.1.1. The

raw (partially preprocessed) images are then sent to the PACS database (controller), which

"services archive retrieval requests from workstations" (TABLE 7.1)]

   b.   selecting from a PACS database, using the PACS workstation, a first

preprocessing function for the raw image data delivered from the imaging modality [section

8.7.1.4 on pages 222-223. Huang teaches that the PACS acquisition gateway generates

brightness and contrast parameters (preprocessing functions) to form a lookup table for adjusting

the brightness and contrast of the image (section 8.7.1.4). Huang further states that the lookup

table containing the parameters (preprocessing functions) are inserted into the image header

(section 8.7.1.4) and sent to the PACS database, allowing the workstations to retrieve the images

from the database, as disclosed above. Note that the PACS database stores a plurality of images,

where each image contains corresponding preprocessing functions. Therefore, the workstation

inherently selects a preprocessing function when it retrieves an image from the PACS database.]

   c.   processing the raw image data at the PACS display workstation by applying the

first preprocessing function to the raw image data to create a resultant image data [last sentence

in section 8.7.1.4 on page 223. Huang teaches that the lookup tables (containing preprocessing

functions) are applied at the time of display. Note that the preprocessing functions are applied at

the workstation because the workstation displays the image, see section 7.1.3 on pages 179-180].

   Referring to claim 8, Huang further discloses the step of applying an image processing

function to the resultant image data to create processed resultant image data (section 12.3.1 on

page 320).

   Referring to claim 9, Huang further discloses displaying the processed resultant image

data (section 12.3 on pages 320-327).

Referring to claim 11, see the rejection of at least claim 1 above. Huang further discloses that the PACS workstation comprises a processing circuit, a PACS network interface coupled to the processing circuit, and a software memory coupled to the processing circuit (section 7.1.3 on page 179).

Referring to claim 12, Huang further discloses that the raw image data corresponds to an anatomical (chest) region, and the preprocessing function is selected based on the anatomical region (second and third paragraph in section 8.7.1.4 on page 223).

Referring to claim 19, see the rejection of at least claim 8 above.

Referring to claim 20, see the rejection of at least claim 9 above.

Referring to claim 21, see the rejection of at least claim 11 above. Huang further discloses an image acquisition workstation (section 7.1.1 on page 177), and a PACS network interfaced to the image acquisition workstation (figure 8.1 on page 201).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 2-7, 10, 13-18, 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over the textbook entitled "PACS Basic Principles and Applications" by Huang ("Huang"), further in view of Takeo et al., U.S. Patent No. 6,231,246 ("Takeo").

Referring to claims 2 and 3, Huang fails to teach that the raw image data is frequency and contrast preprocessed raw image data.

However, frequency and contrast preprocessed raw image data was exceedingly well known in the art. For example, Takeo discloses a frequency and contrast preprocessed raw image data [col. 12, lines 18-34. Note that "preprocessing" an image is interpreted to mean processing an image that will be further processed. Therefore, processing the image under the "first displayed image processing conditions" is interpreted as frequency and contrast preprocessing because the image is processed to yield a desired level of gradation and a desired level of sharpness (lines 18-21), and then further processed under a "second displayed image processing means"].

Huang and Takeo are both concerned with performing image processing on medical images. Takeo's method provides images that have good image quality and are easy to view (Takeo, col. 4, lines 58-60). Therefore, it would have been obvious to modify the raw image data of Huang so that it is frequency and contrast preprocessed raw image data, as taught by Takeo.

Referring to claim 4, see the discussion of claim 1. Huang discloses selecting a contrast preprocessing function (parameter).

Referring to claim 5, Huang and Takeo fail to teach the step of selecting a frequency preprocessing function. Official notice is taken that applying frequency preprocessing to contrast preprocessed images was exceedingly well known in the art. Therefore, it would have been obvious to modify the selecting step of Huang and Takeo so that a frequency preprocessing function is selected. One would have been motivated to select a frequency preprocessing

function in order to yield a visible image having a desired level of sharpness on the display

device (Takeo, col. 12, lines 19-21).

Referring to claim 6, Huang fails to teach that the contrast preprocessing function is

characterized by at least one of a GT, GA, GC, and GS preprocessing parameters.

Takeo teaches contrast preprocessing functions characterized by at least one of a GT,

GA, GC, and GS preprocessing parameters (col. 12, lines 18-60 and TABLE 7).

Huang and Takeo are both concerned with performing image processing on medical

images. Takeo's method provides images that have good image quality and are easy to view

(Takeo, col. 4, lines 58-60). Therefore, it would have been obvious to modify the contrast

preprocessing function of Huang so that it is characterized by at least one of a GT, GA, GC, and

GS preprocessing parameters, as taught by Takeo.

Referring to claim 7, Huang fails to teach that the frequency preprocessing function is

characterized by at least one of a RN, RE, and RT preprocessing parameters.

Takeo teaches frequency preprocessing functions characterized by at least one of a RN,

RE, and RT preprocessing parameters (col. 12, lines 18-60 and TABLE 7).

Huang and Takeo are both concerned with performing image processing on medical

images. Takeo's method provides images that have good image quality and are easy to view

(Takeo, col. 4, lines 58-60). Therefore, it would have been obvious to modify the frequency

preprocessing function of Huang so that it is characterized by at least one of a RN, RE, and RT

preprocessing parameters, as taught by Takeo.

Referring to claim 10, Huang fails to explicitly state that the resultant image data created

by the workstation is stored in the PACS database for future retrieval. Official notice is taken

that storing image data created by workstations in databases was exceedingly well known in the

art. Note that Huang teaches updating the database (Table 7.1). Huang further states that the

database archives the images (studies) (Table 7.1). Therefore, it would have been obvious to

store the resultant image data in the PACS database in order to keep the database updated, and

allow other workstations access to the archived image data for diagnostic purposes.

Referring to claims 13 and 14, see the rejections of at least claims 2 and 3 above.

Referring to claims 15 and 22, see the rejection of at least claim 4 above.

Referring to claims 16 and 24, see the rejection of at least claim 5 above.

Referring to claims 17 and 23, see the rejection of at least claim 6 above.

Referring to claims 18 and 25, see the rejection of at least claim 7 above.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

a.   Wood U.S. Patent No. 5,715,823 discloses a diagnostic imaging system with

universal access to diagnostic information and images.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Charles Kim whose telephone number is 703-306-4038. The

examiner can normally be reached on Monday thru Thursday 8:30am to 6:00pm and alternating
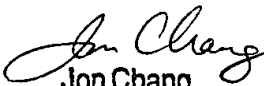
Fridays 9:30am to 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Amelia Au can be reached on 703-308-6604. The fax phone numbers for the

organization where this application or proceeding is assigned are 703-872-9314 for regular

communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is 703-306-0377.

ck

February 7, 2003

Jon Chang

Primary Examiner